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IN THIS ISSUE

Murine Typhus Fever in Louisville, Kentucky

25-Year Survival of Plague Culture Without Transfer

Milk Sanitation Ratings

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CONTENTS

Page

Murine typhus fever in Louisville, Kentucky. Newell E. Good and Emil Kotcher 229
Twenty-five year survival of a *Pasteurella pestis* culture without transfer. Edward Francis 238
Communities awarded milk sanitation ratings of 90 percent or more during 1947 and 1948 241

INCIDENCE OF DISEASE

United States:
Reports from States for week ended February 5, 1949 244
Communicable disease charts 245
Territories and possessions:
Panama Canal Zone—Notifiable diseases—November 1948 248
Puerto Rico—Notifiable diseases—4 weeks ended January 29, 1949 248
Foreign reports:
Australia—Measles 249
Canada—Provinces—Communicable diseases—Week ended January 15, 1949 249
Finland—Notifiable diseases—November 1948 249
Japan—Infectious hepatitis 250
Madagascar—Notifiable diseases—December 1948 250
Mauritius—Poliomyelitis 250
New Zealand—Notifiable diseases—4 weeks ended November 27, 1948 251
Norway—Notifiable diseases—October 1948 251
Influenza in Europe 251
World distribution of cholera, plague, smallpox, typhus fever, and yellow fever—
Cholera 252
Plague 253
Smallpox 254
Typhus fever 256
Yellow fever 257
Deaths during week ended January 29, 1949 258

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Murine Typhus Fever in Louisville, Kentucky

By NEWELL E. GOOD,[1] PH. D, and EMIL KOTCHER,[2] SC. D.

The distribution and extension of murine typhus fever have been studied and reported on by Maxcy (*1*), Meleney (*2*), Topping and Dyer (*3*), and others. From these investigations, the following conclusions are accepted generally:

1. The oriental rat flea, *Xenopsylla cheopis*, is the principal vector and the brown rat, *Rattus norvegicus*, the principal vertebrate reservoir of *Rickettsia mooseri*, the causative agent of murine typhus fever.

2. In the United States the disease is endemic principally in the Southern States. Foci of infection have been found in cities on the Atlantic Seaboard and in southern California.

3. The disease is principally an urban disease, but a considerable number of cases also occur in rural areas where the economy supports readily the rodent reservoir.

4. Railroads, transport trucks, and river boats have been means by which rats and fleas have been transported from foci of infection into new, uninfected areas.

5. While the disease is most frequently reported from the Southern States, in recent years there appears to have been an extension of the infected area into more northerly States. Murine typhus has been reported from 37 States and the District of Columbia during the past 5 years, Wiley (*4*). In recent years autochthonous cases of murine typhus have been reported from such inland cities as East Cleveland and Cincinnati, Ohio; St. Louis, Mo.; and Des Moines, Iowa. This may be due in part to better recognition of the disease by the physicians of these new areas.

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With these conclusions in mind, the questions of whether murine typhus fever had reached Louisville and whether it was going by unrecognized were raised by the clinicians and the personnel of the local Board of Health. It was difficult to believe that Louisville could be free of the disease in view of the following facts:

1. The city is connected by railroad with known foci of marked endemicity. (The Louisville & Nashville Railroad comes up from New Orleans, Mobile, Montgomery, Birmingham, and Nashville. The Southern Railroad has lines from Savannah, Atlanta, and Chattanooga. The Illinois Central Railroad serves the city from such points as New Orleans; Jackson, Miss.; and Memphis. The Chesapeake and Ohio Railroad comes in from Washington, D. C., and the Baltimore and Ohio Railroad from Baltimore, Md.)

2. The city is served by several excellent highways coming from endemic foci in the South and the East.

3. The city is a port on the Ohio River with considerable river traffic from such points as New Orleans, Natchez, Vicksburg, and Memphis.

4. The rat population is rather large and the presence of the flea vector seemed likely, although no actual survey for its presence had been made.

5. The first case of murine typhus fever was reported in Nashville in 1936, and by 1939, 75 cases were reported in a year. In 1941, Bowling Green, Ky., 73 miles north of Nashville on the L. & N. Railroad, had its first reported case of the disease, and in the latter half of 1946 and first half of 1947 some 12 cases occurred in a small outbreak described by Harden (*5*). Louisville is only 114 miles north of Bowling Green on the L. & N. Railroad.

From October 16 through November 30, 1946, an intensive venereal disease case-finding project was conducted by the Louisville and Jefferson County Board of Health. Blood specimens were taken at five permanent clinics and one mobile unit and sent to a special laboratory for Kahn testing. Specimens from 7,777 individuals were processed in this survey. Since many of these were from areas with large rat populations, it seemed advisable to utilize the sera thus obtained to ascertain the proportion with murine typhus complement fixing antibodies. Through the cooperation of the Communicable Disease Center, 1,986 sera were examined by its virus laboratory in Montgomery, Ala. The following results were obtained from this survey:

Total number sera tested	1,986
Total number positive (1:4 or better)	42 (2.11%)
1:4	38 (1.91%)
1:8	3 (0.15%)
1:32	1 (0.05%)

While the type of murine typhus antigen used in performing these tests is not definitely known, it is probable that the soluble antigen was used in the majority of the tests which were made by the Bengston method. Because of the loss of a large percentage of the record slips, giving names and addresses of the individuals from whom the 1947 series of human sera was taken, it was possible to recheck only a few of the C–F positives in this series.

In view of the number of sera which showed a positive reaction, and with the knowledge that murine typhus was apparently spreading northward, the Louisville and Jefferson County Board of Health arranged with the Kentucky State Department of Health to cooperate in a joint survey to determine the typhus incidence among rats in Louisville. Subsequently, the decision was made to survey both the human and the rat populations of the city in order to determine the present status of the disease in the local area. The findings of this survey are the subject of this report.

Human Serological Studies

During the first half of 1948, another series of human sera obtained from the routine tests for syphilis was submitted by the Division of Bacteriology, Kentucky State Department of Health, to the Serology Unit of the Communicable Disease Center, for murine typhus complement fixation tests. The following results were received from this laboratory:

Total number sera tested	793
Total number positive (1:4 or better)	3 (0.38%)
1:4	3 (0.38%)

These three positive murine typhus sera gave negative tests for syphilis. The murine typhus antigen used in performing these tests was the soluble antigen purified by treatment with benzene and sodium sulfate. (Lederle Laboratories—Cox.)

The following data in regard to syphilis were available in the second series of sera:

	Syphilis			
	Total	Negative	Positive	Doubtful
Specimens positive for murine typhus	3	3	0	0
Specimens negative for murine typhus	790	748	36	6

An attempt was made to recheck all individuals reported positive during the tests in 1946 in order to see if any of them had had an

illness during the past 10 years suggestive of murine typhus. Also obtained were other epidemiological data such as occupation, residence outside of Louisville during the past 10 years, etc. A second blood specimen was obtained from these individuals and submitted to the CDC Laboratory. The following results were obtained:

1. Of 7 people who were rechecked, the second complement fixation tests were negative though the time interval between the two tests was less than 18 months.

2. None of these 7 people gave histories of illness that were suggestive of murine typhus fever (high fever for about 2 weeks, rash over body and severe headache).

3. Four of the 7 individuals had lived for varying intervals in places other than Louisville where they may have been exposed to murine typhus.

Rat and Rat Ectoparasite Studies

Geographic Areas Studied

The area surveyed included the City of Louisville and some of its suburbs. Louisville is situated at 38° 15′ N. Lat. and 85° 45′ W. Long., at an average down-town elevation of 459 feet above sea level. The mean annual temperature is 57° F., and the normal annual rainfall is 42.5 inches. The normal mean monthly temperatures for the cold season months, November through March, are 46.5, 37.4, 34.4, 37,3, and 45.4° F., respectively. The population of the city is approximately 350,000 and its area about 40 square miles.

For the purposes of this survey the city was divided into nine types of areas as follows: (A) the business district in the north central part of the city, comprising census tracts 49 and 47 south of Main Street; (B) the market district adjoining the business district in census tracts 48 and 58; (C) the northern industrial area near the Ohio River in census tracts 29, 47, 48, 57, 73, and 81; (D) the stock yards, flour and feed mills, and feed and poultry stores in the northeastern part of the city in census tracts 57, 60, 63, and 81; (E) the city dump near the river in the northeastern part of the city in census tracts 73 and 74; (F) the L&N Railroad yards and the central industrial area in census tracts 32, 35, and 54; (G) horse stables at Churchill Downs and the State Fair Grounds in census tracts 38 and 13; (H) poor residential areas west of the business district in census tracts 3, 19, 20, 22, 24, 25, 30, and 32; and (I) other residential areas including small shopping districts in the south and east parts of the city in census tracts 40, 41, 52, 53, 76, 79, and J–4.

Since the purpose of this survey was to establish the presence or absence of murine typhus infection and not primarily to make a rat or rat ectoparasite survey, there was no uniform coverage of the city. Nearly one-half of the total number of rats were taken in the busi-

ness and market districts. Likewise, it was continued for only 12 weeks so there was no attempt to obtain data in regard to seasonal variations.

Species of Rats in Louisville

Trapping operations were started February 16 and continued through May 7. The extent of trapping during this period totaled 4,896 trap nights. Three hundred seventy-five live rats and 127 dead rats were trapped and 17 live rats were caught by hand.

Table 1. *Habitat and sex ratio of rats caught*

Area	Habitat			Sex		
	Buildings	Sheds	Outside	Male	Female	Immature
A	3	2	112	68	47	2
B	25	0	34	27	31	1
C	7	6	43	27	28	1
D	4	13	25	24	18	0
E	0	0	23	9	14	0
F	10	2	7	7	12	0
G	1	9	2	7	5	0
H	2	0	42	21	23	0
I	1	0	19	9	11	0
Total	53	32	307	199	189	4

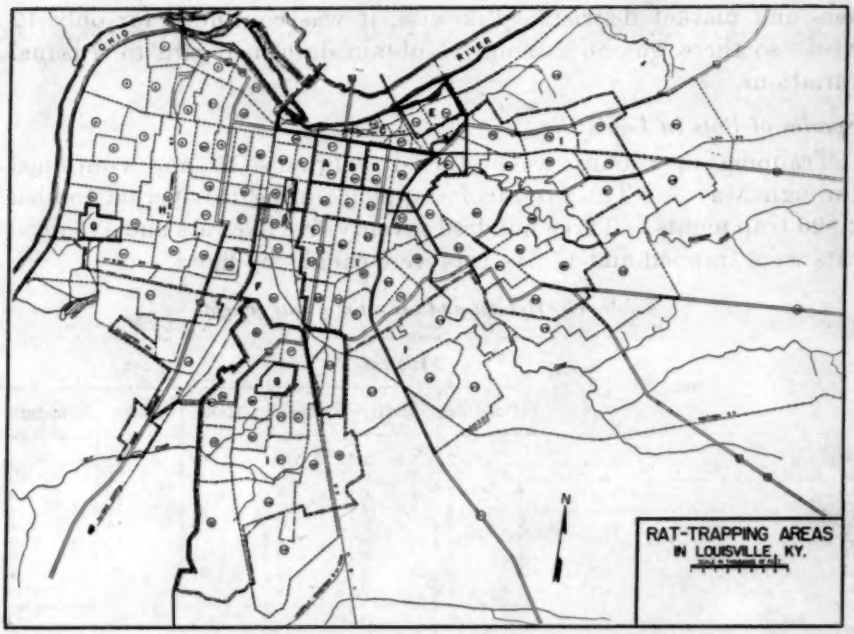
All rats taken proved to be *Rattus norvegicus*. Of the 53 rats caught in buildings, four were taken on the second floor in the market and industrial areas where *R. rattus* would ordinarily be found, if present in the city. Although this does not prove that there are no *R. rattus* in Louisville, the indications are that this species, if present, is not common in this area.

Observations made during this survey on the abundance of rats in Louisville would indicate that *R. norvegicus* are at least as numerous here as in other cities of comparable size in southeastern United States. Factors contributing to the abundance of rats here are large quantities of accessible garbage, an abundance of outdoor shelters such as trash piles, and easy access to most buildings.

Murine Typhus in Rats

Rats were tested for typhus infection by bleeding, centrifuging the blood, and sending the sera to the CDC laboratory where a complement fixation test was made on each specimen. Sera were tested from 373 specimens, of which 22 were anticomplementary, 350 were negative, and one was positive for murine typhus in a titer of 1:8. The positive rat was taken near a small meat packing plant on Story Avenue in area C, census tract 73, about five blocks from the city dump and an equal distance from the stockyards. Eleven other rats taken from the same spot were negative.

It is felt that all sections of the city in which typhus infection



Map of Louisville, showing area boundaries. The dot in area C indicates the site where serologically positive rat was trapped.

might normally be expected to appear were surveyed and that special attention was given to areas where there is the greatest danger of typhus introduction and spread. Rats were caught in 29 census tracts and in 82 blocks.

Rat Ectoparasites

A total of 3,473 ectoparasites was found on the 392 live rats caught and examined. From 1 to 384 ectoparasites were found on 329 of the rats while 63 rats were entirely free of ectoparasites. The number of each species and the number of rats infested were as follows:

		Specimens	*Rats Infested*
Fleas	*Xenopsylla cheopis*	135	55
	Nosopsyllus fasciatus	187	63
Mites	*Liponyssus bacoti*	167	41
	Atricholaelaps glasgowi	*396	57
	Echinolaelaps echidninus	69	24
	Other species of mites	7	6
Lice	(*Polyplax spinulosa*	2,512	281

*237 *A. glasgowi* were found on one rat.

The limited period during which the survey was conducted, from February 16 to May 7, precluded any study of seasonal variations in the abundance of the different species of ectoparasites. The monthly catch of live rats was 98 in February, 206 in March, 71 in April, and

17 during the first 7 days of May. However, since ectoparasite counts in southeastern United States indicate that the *X. cheopis* index normally is from three to four times greater during the months of June through September than during February, March, and April, it is probable that the *X. cheopis* index in Louisville is much higher during the summer months than indicated by the figures given here.

There was a marked difference in flea indices, depending on whether the rats were trapped in buildings or out-of-doors. Rats trapped in buildings averaged 4 to 5 times as many fleas, both *X. cheopis* and *N. fasciatus*, as those caught out-of-doors. Those taken in dirt-floored sheds and barns had few fleas and this group was considered separately from those taken in larger buildings. The actual indices are:

	In Buildings	*In Sheds*	*Out-of-Doors*
X. cheopis	1.02	0.00	0.26
N. fasciatus	1.57	0.19	0.32

An analysis of the ectoparasite indices and percent of rats infested by type of area and location in the city shows marked differences in the occurrence of *X. cheopis* and less significant variations in the distribution of the other ectoparasites. The market and business districts showed an *X. cheopis* index of 0.72 and an infestation of 27 percent of the rats examined, while the remainder of the city gave an *X. cheopis* index of only 0.04 and an infestation of only 3 percent of the rats examined. *N. fasciatus* was more generally distributed but was more numerous in the industrial areas than in other sections.

Table 2 shows the infestation by the different species of ectoparasites of rats taken in various types of areas in Louisville.

Summary and Conclusions

1. On the basis of this and the earlier human serological surveys, it appears that there have probably been very few cases, if any, of murine typhus which originated in Louisville. While it is probable that the clinicians might fail to recognize clinical cases, in view of the demonstrated low incidence of this disease, missed diagnosis is not the chief reason for the lack of reported cases of murine typhus.

2. On the basis of the rat survey, it appears that the infection rate in the rat population is very low at present. From the epidemiological studies of Eskey and Hemphill (*6*) it appears probable that the low winter temperatures of Louisville operate to prevent the establishment and perpetuation of murine typhus in the rat population.

3. The rat ectoparasite survey showed that the oriental rat flea, *Xenopsylla cheopis*, the principal vector of murine typhus rickettsiae, is present in sufficient numbers to transmit the infectious agent to man and rats.

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Table 2. *Ectoparasite infestation of rats caught in Louisville, Ky.*

Area [1]	Dates rats caught (1948)	Number of live rats	FLEAS				MITES [2]						LICE		Total [3] ectoparasites	
			X. cheopis		*N. fasciatus*		*L. bacoti*		*A. glasgowi*		*E. echidninus*		*P. spinulosa*			
			Index	Rats infested	Index	Rats infested	Index	Rats infested	Index	Rats infested	Index	Rats infested	Index	Rats infested	Index	Rats infested
				Percent		*Percent*		*Percent*		*Percent*		*Percent*		*Percent*		*Percent*
A	2/16–3/4	117	0.63	28	0.29	8	0.86	21	[4] 0.58	18	0.07	3	[4] 5.82	61	[4] 8.26	79
B	3/5–3/13	59	.88	27	.37	3	.29	8	.05	2	.30	8	4.40	76	6.30	83
C	3/2–5/6	56	.09	5	1.03	29	.55	4	.70	14	.00	0	[4] 7.41	80	9.80	86
D	3/16–4/1	42	.05	5	.45	29	.14	2	.50	21	.09	2	6.95	83	8.21	95
E	3/19–5/7	23	.00	0	.00	0	.00	0	.09	9	1.61	57	2.65	74	4.38	83
F	3/25–4/20	19	.05	5	1.10	26	.16	10	1.32	16	.00	0	2.73	63	5.37	84
G	4/6–4/9	12	.00	0	.17	8	.25	17	.42	8	.17	8	1.25	67	2.25	83
H	3/23–4/14	44	.00	0	.52	34	.04	5	.30	11	.00	0	4.10	73	4.97	84
I	2/20–4/29	20	.05	5	.40	15	.20	15	.65	30	.00	0	3.60	80	5.00	90
Total or average	2/16–5/7	392	.34	14.0	.48	16.1	.43	10.5	[4] .48	14.5	.18	6.1	[4] 5.17	71.7	[4] 7.10	83.9

[1] Type of area, location, and city census tracts are explained on page 232.

[2] Seven miscellaneous mites are not listed under "Mites" but are included under "Total ectoparasites." This includes two from area I and one each from areas A, C, D, E, and H.

[3] In computation of the ectoparasites indices, specific ectoparasite counts were held to a maximum of 60 for lice and 30 for fleas and mites. This reduced the total number of *P. spinulosa* by 378 in area A, and 106 in area C, and of *A. glasgowi* by 207 in area A. No more than 30 ectoparasites of any other species were found on one rat.

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Twenty-five Year Survival of a *Pasteurella pestis* Culture Without Transfer

By Edward Francis, M. D.*

Observations have been recorded of 10-year survival of a culture of *Pasteurella pestis*, without transfer, by Wilson (*1*); of 9-year survival of viability and virulence of a culture, without transfer, by Francis (*2*); and of 20-year survival of virulent cultures without transfer, by Francis (*3*). Twenty-five year survival of viability and virulence of a culture, without transfer, is reported in the present paper.

The studies were carried out at the National Institutes of Health with a culture of *Pasteurella pestis* P4–7 received December 11, 1922, from the Public Health Service plague laboratory in San Francisco where it had been isolated from a California ground squirrel (*Citellus beecheyi*) shot in California in the antiplague campaign.

In June 1923, the culture P4–7 was found to be highly virulent for guinea pigs and white rats. Heart blood of the guinea pigs was cultured by transfer of a few infected drops of blood to slants of plain beef infusion agar, and the resultant growth was subcultured on the same medium until a collection of 48 infected tubes had accumulated. Some of these still bore a few drops of the infected guinea pig blood used as inoculum, but other subcultures were free from any blood. The resultant collection of cultures of P4–7, all planted in 1923 and numbered 1 to 48, is the basic material on which the author has made viability and virulence tests after 10, 20, and 25 years of storage at 5° to 10° C., without transfer.

20-Year Survival Without Transfer

In 1943, each of the 48 numbered tubes in the 1923 collection was carried over to a correspondingly numbered fresh slant of plain horse-meat infusion agar. The inoculum to each tube consisted of a platinum loopful of undiluted 1923 solid growth. In this 20-year test, 33 of 48 numbers grew luxuriantly in 2 to 7 days, but 15 failed to grow and were discarded along with their correspondingly numbered tubes in the parent 1923 collection.

Virulence tests were made of each of the 33 living subcultures by injecting subcutaneously a loopful of solid growth on the abdomen of a separate guinea pig, with the result that 22 of 33 pigs died of acute plague by the end of the first week and 11 survived to the end of 2 weeks, when they were killed without showing plague lesions.

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*Medical Director (Retired), Public Health Service.

25-Year Survival Without Transfer

Of the 48 original cork-stoppered tubes inoculated in 1923, and maintained at 5° to 10° C. without transfer, 33 survived for the 25-year test of viability in 1948. The latter were transplanted August 25, 1948, each to a fresh cotton-stoppered slant of horse-meat infusion agar and incubated at room temperature with the result that 25 of the 33 transplants grew promptly and luxuriantly in 2 to 8 days, but 8 failed to grow. The latter 8 were discarded together with their correspondingly numbered 1923 parent tubes, leaving 25 living transplants of the 1923 cultures to be tested for virulence in 1948.

Virulence testing of the 25 viable transplants of the 25-year-old cultures consisted of subcutaneous injection of a guinea pig on the abdomen with a platinum loopful of undiluted fresh culture growth collected from the surface of each week-old agar slant. Twenty-five guinea pigs thus inoculated became noticeably sick in 2 to 4 days, but all, except three which died, gradually recovered by the end of 2 weeks. No. 31 died on the 7th day, No. 33 died on the 6th day, and No. 37 died on the 8th day after inoculation.

The three guinea pigs that died manifested the typical lesions of acute plague—edematous swelling and hemorrhagic injection at the site of inoculation, enlarged softened caseous inguinal lymph nodes, and areas of focal necrosis in the enlarged spleen. Smears of these tissues showed great numbers of typical bipolar bacilli when stained with Wayson's stain (*4*), and the spleen yielded typical cultures of *P. pestis*.

Fermentation of Sugars

The one plague strain P4–7 was employed throughout these studies of 1923, 1932, 1943, and 1948, during which time its sugar reactions remained constant. All tests were made in straight tubes containing the semisolid medium proposed by Enlows (*5*), which is composed of water, peptone, potassium and sodium salts, agar 0.15 percent, brom thymol blue as an indicator, and the fermentable substance.

The fermentation reactions noted for the three tubes 33, 37, and 39 in 1948 were as follows: (1) Fermentation with production of acid but no gas in dextrose, levulose, mannose, mannitol, xylose, trehalose, salicin, maltose, galactose, and arabinose; (2) no fermentation of saccharose, lactose, amygdalin, dulcitol, erythritol, inositol, inulin, raffinose, rhamnose, sorbitol, adonitol, dextrine, starch, litmus milk, or glycerol.

All students of plague cultures have emphasized the importance of low temperature and the presence of moisture for the long preservation of viability and virulence. Incubation at 37° C. and the temperature of the tropics rapidly shorten the length of life and virulence of plague cultures and should be avoided.

In the present studies care was exercised to use agar slants liberally supplied with water of condensation. Cotton stoppers were used only during the few days of incubation at room temperature and were then replaced by cork stoppers grasped by mouse-tooth forceps and forcibly introduced after being dipped into a boiling mixture of half paraffin and half vaseline.

This provided a tight-fitting stopper which excluded air and prevented any evaporation of the water of condensation. Such tubes stored upright in a cold room at 5° to 10° C. and opened only three times in 25 years still maintained approximately their original amount of water of condensation.

Future Tests

The present remainder of the 1923 collection of cultures now consists of 25 numbered tubes stored in the cold room to await tests in future years. Another collection of 40 cork-stoppered cultures numbered 49 to 88 prepared in 1924 from plague strain P4–7 and identical with the 1923 collection except that they have not been opened since 1924 are stored in the cold room at 5° to 10° C. awaiting tests for viability and virulence in later years.

ACKNOWLEDGMENT

The author is indebted to Surgeon Carl L. Larson for making the virulence tests on guinea pigs of cultures which had survived 25 years.

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Communities Awarded Milk Sanitation Ratings of 90 Percent or More During 1947 and 1948

Prior to World War II, communities which achieved a compliance rating of 90 percent or more under the milk ordinance recommended by the Public Health Service were listed semiannually in Public Health Reports. Owing to the war time deterioration in milk quality resulting from labor and equipment shortages, as well as from reduction in local milk control staffs, publication of these lists was suspended after the issue of February 19, 1943. At the request of health departments which have succeeded in restoring the quality of their milk supplies, publication of these lists, though much smaller than formerly, is resumed.

Listed in the table are all Public Health Service milk ordinance communities which were reported by State milk-sanitation authorities, during January 1, 1947 to December 31, 1948, as having a market milk rating of at least 90 percent. The inclusion of a community in this list means that if pasteurized milk is sold in the community, it is of such a degree of excellence that the weighted average of the percentages of compliance with the various items of sanitation required by the Public Health Service Milk Ordinance for grade A pasteurized milk is 90 percent or more, and that, similarly, if raw milk is sold in the community, it so nearly meets the standards that the weighted average of the percentages of compliance with the various items of sanitation required for grade A raw milk is 90 percent or more.

These ratings are not a complete measure of safety, but represent the degree of compliance with the grade A standards. High-grade pasteurized milk is safer than high-grade raw milk, because of the added protection of pasteurization. Safety estimates should take into account the percentage of milk pasteurized, which is given in the table. To obtain this added protection, those who are dependent on raw milk can pasteurize the milk at home in the following simple manner: Heat the milk over a hot flame to 165° F., stirring constantly, then immediately place the vessel in cold water and continue stirring until cool, changing the water when it warms up; however, if a dependable thermometer is not available, bring the milk to a boil instead.

The milk ordinance recommended by the Public Health Service is now in effect statewide in 10 States, as well as in 207 counties and 1,207 municipalities located in 39 States. It has been adopted as a regulation by 31 States and Territories.

The primary reason for publishing the rating lists is to encourage

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From Division of Sanitation, Milk and Food Branch.

these communities to attain and maintain a high level of excellence in the enforcement of the ordinance. No comparison with communities operating under other milk ordinances is intended or implied. Some communities which have high-grade milk supplies are not included because arrangements have not been made for the determination of their ratings by the State milk sanitation authority. In other cases the ratings which have been submitted are now more than 2 years old and have therefore lapsed. In still other communities with high-grade milk supplies there seems, in the opinion of the community, to be no local necessity nor desire for rating or inclusion in the list.

The rules under which a community is included in this list are as follows:

1. All ratings must be determined by the State milk-sanitation authority in accordance with the Public Health Service rating method [1] based upon the grade A pasteurized milk and the grade A raw milk requirements of the Public Health Service Milk Ordinance and Code. A recent departure from the method described consists of computing the pasteurized milk rating by weighting the plant rating twice as much as the rating of the raw milk for pasteurization.

2. No community will be included in the list unless both its pasteurized milk and its raw milk ratings are 90 percent or more. Communities in which only raw milk is sold will be included if the raw milk ratings are 90 percent or more.

3. The rating used will be the latest rating submitted to the Public Health Service, but no rating will be used which is more than 2 years old. In order to promote continuous rigid enforcement rather than occasional "clean-up campaigns" it is suggested that when the rating of a community on the list falls below 90 percent no resurvey be made for at least 6 months, resulting in removal from the next semiannual list.

4. The Public Health Service will make occasional check surveys of cities for which ratings of 90 percent or more have been reported by the State. If such check rating is less than 90 percent but not less than 85, the city will be removed from the 90-percent list after 6 months unless a resurvey submitted by the State during this probationary interim shows a rating of 90 percent or more. If, however, such check rating is less than 85 percent, the city will be removed from the list immediately. If the check rating is 90 percent or more, the city will be retained on the list for a period of 2 years from the date of the check survey unless a subsequent rating submitted during this period warrants its removal.

Communities which are now on the list should not permit their ratings to lapse, as ratings more than 2 years old cannot be used.

State milk-sanitation authorities who are not now equipped to

[1] Pub. Health Rep. 53: 1386 (1938). Reprint No. 1970.

determine municipal ratings are urged, in fairness to their communities, to equip themselves as soon as possible. The personnel required is small; in most States one milk specialist is sufficient for this work.

Communities Awarded Milk Sanitation Ratings of 90 Percent or More

1947–48

Community	Percent of milk pasteurized	Date of rating	Community	Percent of milk pasteurized	Date of rating
ALL MARKET MILK PASTEURIZED					
FLORIDA			OKLAHOMA		
Panama City	100	Sept. 18, 1948	Seminole	100	May 5, 1948
Pensacola	100	Dec. 12, 1947	Sulphur	100	July 30, 1948
GEORGIA			TENNESSEE		
Atlanta	100	Apr. 24, 1948	Athens and McMinn County	100	Dec. 2, 1947
Columbus	100	June 25, 1948	Clinton	100	May 25, 1948
Quitman	100	Aug. 25, 1948	Greenville	100	Dec. 5, 1947
ILLINOIS			Maryville-Alcoa	100	Aug. 31, 1948
Champaign-Urbana	100	Aug. 18, 1948	Morristown	100	Dec. 4, 1947
Chicago	100	Sept. 24, 1947	TEXAS		
East Peoria	100	July 31, 1947	Houston	100	Dec. 3, 1948
KENTUCKY			Pampa	100	May 24, 1948
Bowling Green	100	Dec. 1, 1947	San Antonio	100	June 21, 1948
			Tyler	100	Mar. 31, 1948
			VIRGINIA		
			Richmond	100	May 1948
			Suffolk	100	Apr. 1948
BOTH RAW AND PASTEURIZED MARKET MILK					
FLORIDA			TENNESSEE		
Madison	62.5	Sept. 25, 1947	Bristol	99	Dec. 10, 1947
GEORGIA			Elizabethton	99	May 24, 1948
Macon	96.6	June 4, 1948	Johnson City and Washington County	96	Dec. 6, 1947
Thomasville	81.5	July 28, 1948	Kingsport	99	Dec. 11, 1947
Tifton	92	Apr. 15, 1948	Knoxville	99	Dec. 12, 1947
NORTH CAROLINA			TEXAS		
Greensboro	96	July 1947	Fort Worth	99.9	Mar. 9, 1948
OKLAHOMA			Lubbock	98	Sept. 27, 1947
Lawton	92	June 30, 1948	Wichita Falls	99	Mar. 29, 1948
Muskogee	88	Apr. 2, 1948	VIRGINIA		
Shawnee	96	June 3, 1948	Abingdon	75	Dec. 10, 1947
			Bristol	99	Dec. 10, 1947
			Emporia	26	Jan. 1948

NOTE. In these communities the pasteurized market milk shows a 90 percent or more compliance with the grade A pasteurized milk requirements and the raw market milk shows a 90 percent or more compliance with the grade A raw milk requirements of the Public Health Service Milk Ordinance and Code.

Note particularly the percentages of milk pasteurized in the various communities listed. This percentage is an important factor to consider in estimating the safety of a city's milk supply. All milk should be pasteurized or boiled, either commercially or at home, before it is consumed. See text for home method.

819914—49——3

INCIDENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

REPORTS FROM STATES FOR WEEK ENDED FEBRUARY 5, 1949

The net seasonal increase of 2,419 cases in the reported incidence of measles (current week total 17,685, last week 15,266, 5-year median 7,997) is widely distributed, increases being reported in all geographic divisions (the largest in the Middle Atlantic and New England areas) except the East South Central and Mountain. States reporting the largest numbers are as follows (last week's figures in parentheses): Massachusetts 1,391 (1,171), New York 1,315 (993), Pennsylvania 1,402 (1,145), Wisconsin 721 (583), Kansas 507 (286), Maryland 1,127 (774), Virginia 827 (815), Texas 2,456 (2,086), Oregon 681 (474), California 655 (890).

Of the total of 5,170 cases of influenza reported for the current week (last week 4,534, 5-year median 12,896), 3,894 cases occurred in 3 States, as follows (last week's figures in parentheses): Virginia 437 (464), South Carolina 663 (625), and Texas 2,794 (2,327). These 3 States have reported 17,218 (76 percent) of the total of 22,511 cases reported for the year to date. For the same period last year they reported 34,682 (58 percent) of the total of 59,531 cases reported for the corresponding 5 weeks of that year.

Of 80 cases of poliomyelitis reported currently, 29 occurred in California, 6 in Texas, 5 in North Carolina, and 4 each in Kansas and Idaho.

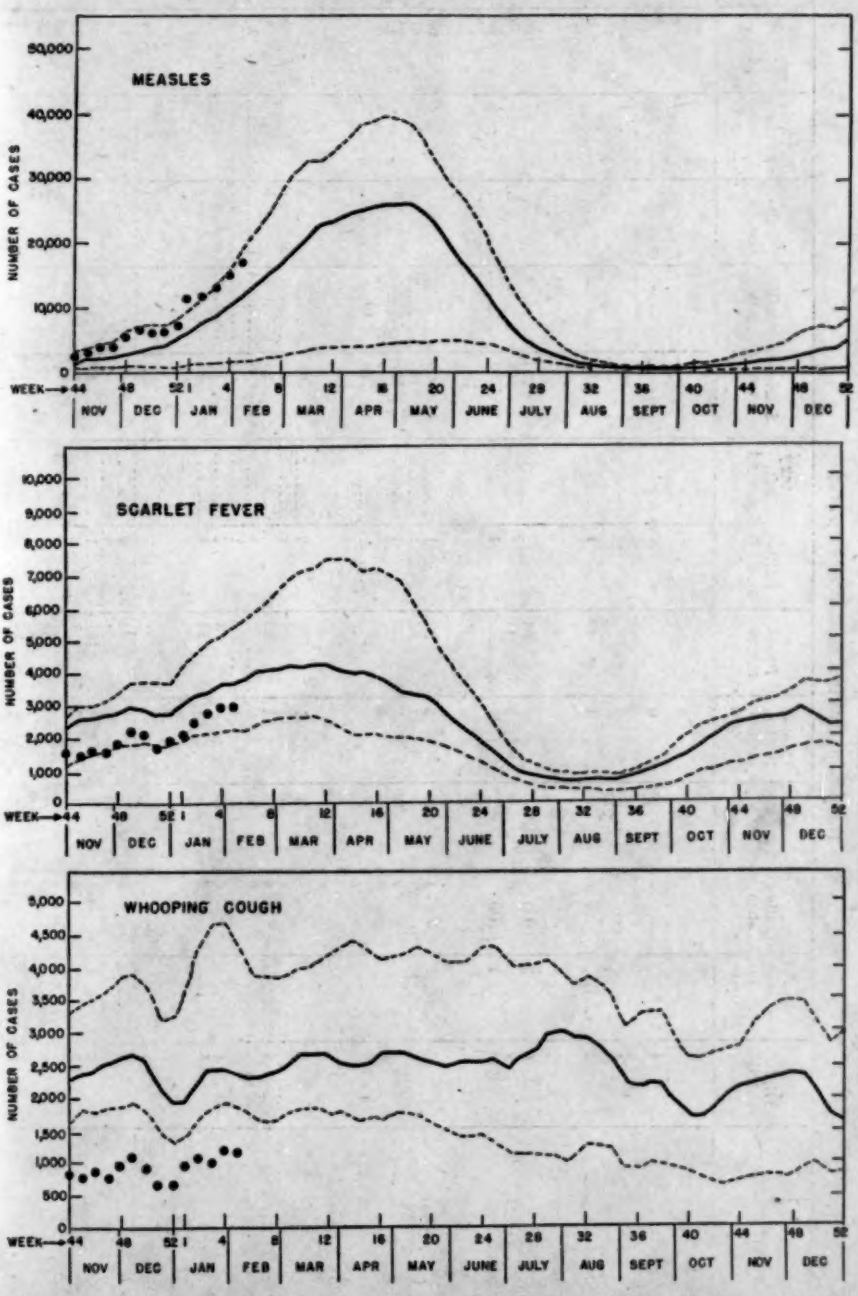
During the current week, Massachusetts, New York, and Pennsylvania each reported 1 case of anthrax, North Carolina 1 case of Rocky Mountain spotted fever, and Missouri 2 cases of smallpox.

For the first 5 weeks of the year, other cumulative figures above the respective 5-year medians are as follows (5-year median figures in parentheses): Infectious encephalitis 40 (36), Rocky Mountain spotted fever 8 (1), tularemia 175 (122).

Deaths recorded for the week in 94 large cities in the United States totaled 9,838, as compared with 9,518 last week, 10,772 and 9,692, respectively, for the corresponding weeks of 1948 and 1947, and a 3-year (1946–48) median of 10,259. The total for the year to date is 49,952, corresponding figure last year 53,132. Infant deaths totaled 734, last week 635, 3-year median, 751. The cumulative figure is 3,479, same period last year, 3,667.

Communicable Disease Charts

All reporting States, November 1948 through February 5, 1949



The upper and lower broken lines represent the highest and lowest figures recorded for the corresponding weeks in the 7 preceding years. The solid line is a median figure for the 7 preceding years. All three lines have been smoothed by a 3-week moving average. The dots represent numbers of cases reported for the weeks of 1949.

Telegraphic case reports from State health officers for week ended February 5, 1949

[Leaders indicate that no cases were reported]

Division and State	Diphtheria	Encephalitis, infectious	Influenza	Measles	Meningitis, meningococcal	Pneumonia	Poliomyelitis	Rocky Mt. spotted fever	Scarlet fever	Smallpox	Tularemia	Typhoid and paratyphoid fever [4]	Whooping cough	Rabies in animals
NEW ENGLAND														
Maine				486		7			27				4	
New Hampshire	1			35									4	
Vermont				383					15				10	
Massachusetts	7			1,391	2				306			4	65	
Rhode Island		1		233		5			[5] 4					
Connecticut	2		27	385	1	49	1		60				8	
MIDDLE ATLANTIC														
New York	9	3	(b)	1,315	15	308			[5] 260				160	2
New Jersey	2		3	453	2	116			123				39	3
Pennsylvania	18	1	(b)	1,402	11		1		280			4	76	1
EAST NORTH CENTRAL														
Ohio	6		1	46	2	37	1		299			4	69	17
Indiana	11		27	94	1	35	1		105		1		41	17
Illinois	1		2	58	2	103	1		182		2		38	4
Michigan [3]	1		4	482	3	54	1		389			1	40	1
Wisconsin	2		71	721	2	15			70	(c)			40	
WEST NORTH CENTRAL														
Minnesota	2			46	1	3	3		91					
Iowa				15	1	5			53				5	3
Missouri	2		6	395	1	32			25	2	2		4	
North Dakota			9	56			1		5				10	
South Dakota				21	1		1		9					
Nebraska	1		6	29		3	3		11					
Kansas	5		2	567	1	22	4		38				5	
SOUTH ATLANTIC														
Delaware	1			6					20				1	
Maryland [3]	3		2	1,127	1	42	2		29			1	12	
District of Columbia				53	2	23			7				4	
Virginia	4	1	447	827	4	161	1		19			2	25	1
West Virginia	2		25	97	2	7	2		19				17	
North Carolina	7	1		286			5	1	24		2	3	45	
South Carolina	1		663	72		195			12		5	1	29	8
Georgia	3		16	120	1	24	1		18		5	1	2	13
Florida	3		4	71	1	27			11			2	5	1

EAST SOUTH CENTRAL															
Kentucky	6	1	4	177	2	13			57			6	59	26	
Tennessee	7		92	165	3	57	1		49		3	1	10		
Alabama	4		79	493		58	1		18				2	9	
Mississippi [a]	7		22	20	1	37	2		3		1	2	5		
WEST SOUTH CENTRAL															
Arkansas	5		155	338		118			4			1	16	3	
Louisiana	3		4	215	2	69	3		16		3	5	2		
Oklahoma	1		110	139	1	59			13		2		12	5	
Texas	13		2,794	2,456	4	585	6		26		1	4	150	9	
MOUNTAIN															
Montana			31	91		3			33		1		1		
Idaho			4	57	1	10	4		12						
Wyoming				25					4		1	1	1		
Colorado	2		100	147	2	40			20				9		
New Mexico			2	150		33	1		4			1			
Arizona	6		191	134	1	40	2		4			1	10		
Utah [a]	3			99		13			8		1		5		
Nevada				1											
PACIFIC															
Washington	1		232	430	1	6	2		68				16		
Oregon	2		30	681	2	61			13				26		
California	6	3	15	655	8	34	29		108			3	82	3	
Total	160	11	5,170	17,685	85	2,509	80	1	2,971	[1] 2	30	48	1,164		
Median, 1944–48	302	10	12,896	7,997	211		38		3,216	6	18	53	2,289		
Year to date 5 weeks	935	40	22,511	69,293	435	10,997	574	8	13,206	[1] 2	175	196	5,372		
Median, 1944–48	1,579 (27th)	36	59,531 (30th)	28,282 (35th)	1,120 (37th)		194 (11th)	1	14,155 (32nd)	35 (35th)	122	219 (11th)	11,388 (39th)		
Seasonal low week ends (1948)	July 10		July 31	Sept. 4	Sept. 18		Mar. 20		Aug. 14	Sept. 4		Mar. 20	Oct. 2		
Since seasonal low week ends	6,049		58,781	121,686	1,279		27,901		35,904	[1] 17		3,315	15,405		
Median, 1943–48	9,145		103,089	54,406	2,624		13,585		52,726	111		4,456	36,460		

[a] Period ended earlier than Saturday.
[b] New York City and Philadelphia only, respectively.
[c] Including cases reported as streptococcal infection and septic sore throat.
[d] Including paratyphoid fever, currently reported separately, as follows: North Carolina 2; Louisiana 1; Texas 1; Wyoming 1; salmonella infections, not included, were reported as follows: Massachusetts 1.
Anthrax: Massachusetts 1; New York 1; Pennsylvania 1.
[1] Correction: Smallpox, Wisconsin week ended January 8, no cases (instead of 1) (diagnosis changed).
Alaska: Measles 5; streptococcal throat 19.
Territory of Hawaii: Diphtheria 1; influenza 81; measles 431; lobar pneumonia 3; whooping cough 6.

TERRITORIES AND POSSESSIONS

Panama Canal Zone

Notifiable diseases.—November 1948.—During the month of November 1948, certain notifiable diseases were reported in the Panama Canal Zone and terminal cities as follows:

Disease	Residence [1]									
	Panama City		Colon		Canal Zone		Outside the zone and terminal cities		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Chickenpox	6		5		3		1		15	
Dysentery:										
Amebic	1		2		2		1		6	
Bacillary	1				11		1		13	
Encephalitis (unspecified)								1		1
Hepatitis, infectious					1		2		3	
Malaria [2]	6		2		8		125		141	
Measles	2				1		2		5	
Meningitis (unspecified)			3	1					3	1
Mumps	1		2		5		1		9	
Pneumonia		12		1	24			3	[3] 24	16
Poliomyelitis					1				1	
Tuberculosis		20		5	3			6	[3] 3	31
Typhoid fever							1		1	
Undulant fever							1		1	
Yaws	5						2		7	

[1] If place of infection is known, cases are so listed instead of by residence.
[2] 3 recurrent cases.
[3] Reported in the Canal Zone only.

Puerto Rico

Notifiable diseases.—4 weeks ended January 29, 1949.—During the 4 weeks ended January 29, 1949, cases of certain notifiable diseases were reported in Puerto Rico as follows:

Disease	Cases	Disease	Cases
Chickenpox	28	Syphilis	125
Diphtheria	37	Tetanus	6
Dysentery	4	Tetanus, infantile	2
Gonorrhea	237	Tuberculosis (all forms)	318
Influenza	40	Typhoid fever	29
Malaria	81	Whooping cough	185
Measles	75		

FOREIGN REPORTS

AUSTRALIA

Measles.—An epidemic of measles was reported in South Australia during the period September 25, 1948 to January 4, 1949. The peak of the outbreak apparently was reached during the first two weeks of November, when 1,859 cases were reported. The total number of cases reported up to January 4, 1949, was 7,091.

CANADA

Provinces—Communicable diseases.—Week ended January 15, 1949.—During the week ended January 15, 1949, cases of certain communicable diseases were reported by the Dominion Bureau of Statistics of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Chickenpox		54	2	227	979	56	130	160	374	1,982
Diphtheria				20	6	3		9	1	39
Dysentery, bacillary				1						1
German measles				40	13	3		11	8	75
Influenza		5			18	6			13	42
Measles		146	4	210	156	127	50	157	92	942
Meningitis, meningococcal					1	1	2			4
Mumps		32	3	115	354	73	60	24	55	716
Poliomyelitis				1				1	2	4
Scarlet fever		11	5	143	82	7	6	6	7	267
Tuberculosis (all forms)		9	13	99	40	19	7	19	42	248
Typhoid and paratyphoid fever			1	3					1	5
Undulant fever				1	2	1				4
Venereal diseases:										
Gonorrhea		12	7	75	70	31	16	30	99	340
Syphilis		15	12	117	44	5	8	6	14	221
Other forms									1	1
Whooping cough		8	1	145	24	2	5	10		195

FINLAND

Notifiable diseases—November 1948.—During the month of November 1948, cases of certain notifiable diseases were reported in Finland as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	9	Poliomyelitis	10
Diphtheria	183	Scarlet fever	359
Dysentery	17	Syphilis	209
Gonorrhea	951	Typhoid fever	27
Paratyphoid fever	99		

JAPAN

Hepatitis.—Information dated January 19, 1949, states that 361 persons had been hospitalized in Tokyo with infectious hepatitis.

MADAGASCAR

Notifiable diseases—December 1948.—Notifiable contagious diseases were reported in Madagascar and Comoro Islands during December 1948 as follows:

Disease	December 1948			
	Aliens		Natives	
	Cases	Deaths	Cases	Deaths
Beri-beri			29	0
Bilharziasis			166	0
Cerebrospinal meningitis			13	6
Diphtheria	2	1	3	0
Dysentery:				
Amebic	14	1	317	2
Bacillary	1	0	8	1
Erysipelas			8	0
Influenza	14	0	2,245	19
Leprosy			34	0
Malaria	410	4	36,096	189
Measles	3	0	121	2
Mumps			143	0
Plague			21	19
Pneumonia, broncho	2	1	262	49
Pneumonia, pneumococcic	3	0	481	63
Puerperal infection			11	2
Relapsing fever			4	0
Tuberculosis, pulmonary	5	0	106	27
Typhoid fever	3	0	18	2
Whooping cough	2	0	210	4

MAURITIUS

Poliomyelitis.—During the recent outbreak of poliomyelitis in Mauritius a total of 192 cases with 5 fatalities had been reported up to December 31, 1948. Cases were stated to have occurred in 10 different localities, with indications of spread from Port Louis, which reported the greatest number of cases in the early stages of the epidemic. The latest reports are as follows: Week ended January 8, 1949, 82 (new) cases; week ended January 15, 80 cases; week ended January 22, 51 cases.

NEW ZEALAND

Notifiable diseases—4 weeks ended November 27, 1948.—During the 4 weeks ended November 27, 1948, certain notifiable diseases were reported in New Zealand as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Cerebrospinal meningitis	7	1	Poliomyelitis	77	3
Diphtheria	8	1	Puerperal fever	10	
Dysentery:			Scarlet fever	100	
Amebic	5		Tetanus	1	
Bacillary	6		Trachoma	2	
Encephalitis, lethargic	1	1	Tuberculosis (all forms)	159	39
Erysipelas	9		Typhoid fever	3	1
Food poisoning	3		Undulant fever	8	
Malaria	1				

NORWAY

Notifiable diseases—October 1948.—During the month of October 1948, cases of certain notifiable diseases were reported in Norway as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	11	Mumps	391
Diphtheria	60	Paratyphoid fever	1
Dysentery, unspecified	3	Pneumonia (all forms)	1,887
Encephalitis, epidemic	1	Poliomyelitis	92
Erysipelas	458	Rheumatic fever	109
Gastroenteritis	2,636	Scabies	3,132
Gonorrhea	441	Scarlet fever	826
Hepatitis, epidemic	203	Syphilis	137
Impetigo contagiosa	3,936	Tuberculosis (all forms)	322
Influenza	3,364	Typhoid fever	4
Laryngitis	10,037	Undulant fever	1
Measles	2,023	Whooping cough	789

INFLUENZA IN EUROPE

Information received from the World Health Organization for the week ended February 2, 1949, gives the following reports on the incidence of influenza in Europe: There has been a moderate increase of seasonal catarrh in the American Zone of Germany, with localized influenza epidemics in Southwest Bavaria and Wurtenburg-Baden. Small foyers exist in the French Zone of Germany with 30 percent of the population of the Saar Territory affected. Belgium reports widespread incidence of the disease throughout the country. Influenza has appeared in Finland in a mild form. The epidemic is declining throughout France, but cases of a more serious clinical character are more frequent.

WORLD DISTRIBUTION OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From consular reports, international health organizations, medical officers of the Public Health Service, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases]

NOTE.—Since many of the figures in the following tables are from weekly reports, the accumulated totals are for approximate dates.

Place	January–November 1948	December 1948	January 1949—week ended—				
			1	8	15	22	29
AFRICA							
Egypt	1						
Cairo	1						
ASIA							
Burma [1]	46						
Akyab	5						
Bassein	1						
Moulmein	1						
Rangoon	2						
China:							
Hupeh Province	3						
Wuchang	3						
Kiangsi Province	[3] 9						
Kiangsu Province	2						
Shanghai	1						
India	167,086	6,685	2,247	[3] 1,238	[3] 369	[3] 218	
Ahmadabad	77						
Allahabad [1]	6						
Alleppey	1						
Bombay [1]	44	5					
Calcutta [1]	7,750	188	38	94	156	219	
Cawnpore	157						
Cocanada	15						
Colachel	12						
Cuddalore	36						
Jodhpur [1]	56						
Kilakarai	21						
Lucknow	48						
Madras	1,130	39	8	8	1		
Masulipatam	33						
Nagpur	71						
Negapatam	17		1	4	2	1	
New Delhi	26						
Raj Samand	6						
Tuticorin	16			4	5		
Vizagapatam	1						
India (French):							
Chandernagor	21						
Karikal	300				[4] 28		
Pondicherry	420				[4] 34		
Yanaon	2						
India (Portuguese)	20						
Indochina (French):							
Annam	[4] 45	[4] 4					
Cambodia	1,354	1					
Cochinchina	595						
Bien Hoa	1						
Chaudoc	2						
Cholon	29						
Giadinh	23						
Longxuyen	7						
Mytho	56						
Rachgia	133						
Saigon	136						
Laos	[7] 32						
Tonkin	20						

See footnotes at end of table.

CHOLERA—Continued

Place	January–November 1948 [1]	December 1948	January 1949—week ended—				
			1	8	15	22	29
ASIA—continued							
Pakistan	32,737	[6] 3,359	6	10	14	4	
Chittagong	41	5	6	10	14	4	
Karachi	4	3					
Lahore	406	9		1			
Siam	43	1					
Syria	3						

[1] Includes imported cases.
[2] Suspected.
[3] Preliminary figures.
[4] Jan. 1–15, 1949.
[5] Includes suspected cases.
[6] Deaths.
[7] Includes 12 deaths reported as cases in February 1948.
[8] 2 weeks, Nov. 28–Dec. 11, 1948.

PLAGUE

(Cases)

AFRICA							
Belgian Congo	20	1	2			2	
Costermansville Province	11		[1] 1				
Stanleyville Province	9	1	1			2	
British East Africa:							
Kenya	37	2					
Tanganyika	312	4					
Ethiopia	9						
Madagascar	395	21				1	
Tamatave	1						
Tananarive	33					1	
Rhodesia, Northern	34	24					
Union of South Africa	[2] 49	3					
ASIA							
Burma [2]	914	166	20	52	16		
Mandalay	18						
Rangoon	19						
China:							
Chekiang Province	41	2					
Wenchow	12	2					
Fukien Province	343						
Foochow	4						
Kiangsi Province	[4] 63	3					
Kwangtung Province	116						
Yunnan Province	149						
India	22,570	1,649	538	312	(5)	(5)	
Indochina (French):							
Annam	234	31	2				1
Cambodia	4		2				
Cochinchina	45						
Laos	3	2		1			
Mountain Area South-Indochina	23						
Java	[6] 2,460						
Pakistan	11						
Siam	126	7	2	7	1		
EUROPE							
Portugal: Azores	17						
SOUTH AMERICA							
Argentina	12						
Buenos Aires Province	9						
Brazil	125						
Alagoas State	22						
Bahia State	83						
Ceara State	11						
Pernambuco State	9						

See footnotes at end of table.

PLAGUE—Continued

Place	January-November 1948	December 1948	January 1949—week ended— 1	8	15	22	29
SOUTH AMERICA—continued							
Ecuador	40						
Chimborazo Province	1						
Loja Province	39						
Peru	49	9					
Cajamarca Department	11	2					
Lambayeque Department		4					
Libertad Department	1						
Lima Department	35	1					
Piura Department	2	2					
Venezuela:							
Aragua State	7						
OCEANIA							
Hawaii Territory: Plague-infected rats [7]	5						

[1] Pneumonic plague.
[2] Includes 4 cases of pneumonic plague.
[3] Includes imported cases.
[4] Includes suspected cases.
[5] Week ended Jan.15, 1949, Calcutta 1 case; week ended Jan. 22, Calcutta 2 cases, Cawnpore 5 cases.
[6] Includes 1 case of pneumonic plague in Surabaya in September 1948.
[7] Plague infection was also reported in Hawaii Territory, under date of Feb. 27, 1948, in a mass inoculation of tissue from 19 rats.

SMALLPOX

(Cases—P=present)

AFRICA							
Algeria	353	44			[1] 10		
Angola [2]	522	3					
Basutoland	3						
Bechuanaland	2						
Belgian Congo [3]	2,695	221	100	39	50		
British East Africa:							
Kenya	141	7					
Nyasaland	4,753	249	40	18			
Tanganyika [3]	1,208	17					
Uganda	211	4					
Cameroon (French) [3]	4	2					
Dahomey	474				[1] 3	[4] 8	
Egypt [5]	458	15	1	6			
Eritrea	9						
Ethiopia	25						
French Equatorial Africa	16						
French Guinea	136						
French West Africa: Haute-Volta	438	3			[1] 1		
Gambia	27						
Gold Coast	1,515						
Ivory Coast	768	65			[1] 6	[4] 12	
Libya	261	2					
Mauritania	2						
Mauritius	[6] 1						
Morocco (French)	36						
Mozambique	346	23					
Nigeria	4,085						
Niger Territory	399	22			[1] 2		
Rhodesia:							
Northern	1,343	672					
Southern	1,710						
Senegal	8				[1] 1		
Sierra Leone	196						
Sudan (Anglo-Egyptian) [3]	1,452	8	4	4	8	1	
Sudan (French)	17	4			[1] 1		
Swaziland	6						
Togo (British)	24						
Togo (French)	116	3			[1] 3		
Tunisia	542	1					
Union of South Africa	301	P	P	P			

See footnotes at end of table.

SMALLPOX—Continued

Place	January–November 1948	December 1948	January 1949—week ended— 1	8	15	22	29
ASIA							
Arabia	8				[6] 19	1	
Bahrein Islands							
British North Borneo	1						
Burma [3]	2,886	128	18	3	14		
Ceylon [3]	22						
China [3]	3,869	213			[4] 47		
India	59,481	1,164	537	349	504		
India (French)	6						
India (Portuguese)	187	5					
Indochina (French)	3,981	116	36	12	51	522	
Iran	990	165	11				
Iraq [3]	1,335	426	50	37	33	48	36
Japan	[7] 31						
Java [3]	2				66	P	
Lebanon [3]	67	75	37	24	26		
Macao Island: Macao	11						
Malay States (Federated) [3]	541	5					
Manchuria	78						
Pakistan [3]	12,081						
Palestine	8						
Philippine Islands: Mindoro Island	155	37					
Siam [3]	536	4	1	2	1		
Straits Settlements: Singapore	13						
Sumatra [3]	1,698						
Syria	[7] 534	353	11	25	24	18	
Transjordan [3]	16	36	3	9	16	9	
Turkey: Izmir	4						
(See also Turkey in Europe.)							
EUROPE							
France	3						
Germany	3						
Greece	4						
Italy [3]	11						
Portugal	78						
Spain	19						
Canary Islands	9						
Turkey	44	3	1	1	9	3	2
NORTH AMERICA							
British Honduras	3						
Guatemala	2						
Mexico	980			2			
SOUTH AMERICA							
Argentina	40	1	9				
Bolivia	31						
Brazil	465	9	12				
Chile	8						
Colombia	6,178	178					
Ecuador [3]	3,718	10	3	8			
Paraguay [3]	107	6					
Peru [3]	2,247						
Trinidad	[5] 12						
Venezuela [3]	4,488	92	24	60	51		

[1] Jan. 1–10, 1949.
[2] Includes alastrim.
[3] Includes imported cases.
[4] Jan. 11–20, 1949.
[5] In Port Louis, imported.
[6] Jan. 1–15, 1949.
[7] Corrected figure.
[8] Alastrim.

TYPHUS FEVER*

(Cases)

(P = Present)

Place	January-November 1948	December 1948	January 1949—week ended— 1	8	15	22	29
AFRICA							
Algeria	195	7			5		
Basutoland	10						
Belgian Congo [1]	239	9			3		
British East Africa:							
Kenya [1]	71						
Zanzibar	1						
Egypt	365	8		2			
Eritrea	48			7			
Ethiopia	178						
French Equatorial Africa	1						
Gambia: Bathurst	1						
Gold Coast [1]	9	1					
Libya	495	5	2	2	2	3	
Madagascar: Tananarive	[2] 7						
Morocco (French)	82				2		
Morocco (International Zone)	5						
Morocco (Spanish) [1]	8						
Mozambique [1]	3						
Nigeria [1]	7						
Rhodesia (Southern)	[2] 1						
Senegal	[2] 4						
Sierra Leone	[2] 18						
Somalia	2						
Tunisia [1]	632	1			2		
Union of South Africa [1]	415	P		P	P		
ASIA							
Burma	5	1					
China [1]	196	6					
India	1	2			1		
India (Portuguese)	9	2					
Indochina (French) [1]	72	1					
Iran [1]	142	8					
Iraq [1]	211	9	1				2
Japan	[2] 450	37	7	8	6		
Java	3						
Malay States (Federated)		14					
Manchuria	38						
Pakistan	22						
Palestine [1]	12						
Philippine Islands [1]	[4] 5						
Straits Settlements: Singapore [1]	[3] 24						
Syria [1]	59	7					
Transjordan	67	3		2		2	
Turkey (see Turkey in Europe).							
EUROPE							
Albania	15						
Bulgaria	749	31					
Czechoslovakia	8						
France	5						
Germany:							
British Zone	8						
French Zone	12						
United States Zone	8	4					
Great Britain:							
Cyprus [3]	1						
England and Wales	[3] [6] 2						
London	[3] [6] 1						
Ireland (Northern)	[3] 2						
Malta [3]	27	2					
Greece [1] [4]	332	14	1	6	3	5	2
Hungary	59	2			1	1	
Italy [1]	568						
Sicily	27						
Netherlands	[2] 1						

See footnotes at end of table.

TYPHUS FEVER—Continued

Place	January–November 1948	December 1948	January 1949—week ended— 1	8	15	22	29
EUROPE—continued							
Poland	360	14					
Portugal	4						
Azores: Ponta Delgada	[7] 1						
Madeira Islands: Funchal	1						
Rumania [1]	21,978	184	49	46	34		
Spain	21						
Turkey	362	29	4	5	11	10	
Yugoslavia	602	7					
NORTH AMERICA							
Costa Rica [2]	28						
Cuba [2]	24						
Guatemala	181						
Jamaica [2]	19	1	1				
Mexico [1]	1,124	4		2			
Panama Canal Zone [1]	8						
Panama Republic	6						
Puerto Rico [2]	38						
SOUTH AMERICA							
Argentina	20						
Bolivia	[8] 93						
Brazil	151	21					
Chile [1]	384	2		1			
Colombia [1]	3,017	217					
Curacao [2]	21	1					
Ecuador [1]	445	1					
Peru	834						
Venezuela [1]	164	[9] 1			[9] 1		
OCEANIA							
Australia [2]	160	8	2				
Hawaii Territory [2]	18	4					
Honolulu	3						
New Caledonia	1						

*Reports from some areas are probably murine type, while others include both murine and louse-born types.

[1] Includes murine type.
[2] Murine type.
[3] Corrected figure.
[4] Includes suspected cases.
[5] Includes nonresident and imported cases.
[6] Imported.
[7] Death.
[8] Includes 9 deaths reported as cases in Cochabamba Department in March 1948.
[9] In Maracaibo.

YELLOW FEVER

(C—cases; D—deaths)

AFRICA								
Belgian Congo:								
Stanleyville Province	D			2				
Gold Coast:								
Kumasi	D	1						
Accra	D	2						
Ivory Coast:								
Gagnao	D	1						
Sudan (French):								
Sebekoro	D	1						
NORTH AMERICA								
Panama:								
Pacora	C					8		

See footnotes at end of table.

YELLOW FEVER—Continued

Place		January–November 1948	December 1948	January 1949—week ended— 1	8	15	22	29
SOUTH AMERICA								
Argentina	D	1						
Cerro Azul, Misiones Territory	D	1						
Bolivia, [1]								
Brazil	D	3						
Bahia State:								
Ilheus City, Itajuipe	D	1						
Ubaitaba County	D	1						
Rio Grande do Sul State:								
Sao Luiz Gonzaga	D	[3] 1						
British Guiana	D	[3] 1						
Colombia	D	10						
Antioquia Department:								
Maceo	D	4						
Yolomba	D	1						
Boyaca Department:								
Campohermoso	D	1						
Caldas Department:								
La Dorado	D	1						
Samana	D	1						
La Victoria	D	1						
Cundinamarca Department:								
Medina	D	7						
Intendencia of Meta:								
Cumaral	D	1						
Restrepo	D	1						
San Martin	D	1						
Peru: [4]								
Loreto Department:								
Nauta, Loreto Province	D	1						
Venezuela:								
Bolivar State:								
Bostanamo, Tumeremo County	D	1						

[1] Delayed report: During the months of April and May 1947, 5 cases of yellow fever were reported in Bolivia, distributed as follows: Santa Cruz Department—Nuño de Chavez 1, Concepcion 1, Cercado 1; La Paz Department—Province of Sud Yungas, Chulmani 1, Province of Nor Yungas, Coroico 1.
[3] Suspected.
[3] In forested area, 60 miles up Berbice River from Kwakwani.
[4] Delayed report: On July 23, 1948, 1 death from yellow fever was reported to have occurred in Tingo Maria, Huanoco Department, Peru, in the month of November 1947.

DEATHS DURING WEEK ENDED JAN. 29, 1949

[From the Weekly Mortality Index, issued by the National Office of Vital Statistics]

	Week ended Jan. 29, 1949	Corresponding week, 1948
Data for 94 large cities of the United States:		
Total deaths	9,518	10,478
Median for 3 prior years	10,156	
Total deaths, first 4 weeks of year	40,114	42,360
Deaths under 1 year of age	635	680
Median for 3 prior years	677	
Deaths under 1 year of age, first 4 weeks of year	2,745	2,913
Data from industrial insurance companies:		
Policies in force	70,653,568	66,912,156
Number of death claims	13,741	13,904
Death claims per 1,000 policies in force, annual rate	10.1	10.9
Death claims per 1,000 policies, first 4 weeks of year, annual rate	9.6	11.2